Florida Citrus Advanced Technology Program

QUARTERLY & FINAL REPORTS: Control of Citrus Greening, Canker & Emerging Diseases of Citrus

Instructions Complete the fields based on your project specs. When finished, save the form to your local disk using a unique name. Then, go to **http://research.fcprac.com**, and log in with your user name and password using Researcher Login in the lower left. Find this project title and click on **Submit a Report**. Update your profile information if needed, then upload this report as directed.

2009-2010 REPORT	CATEGORY (drop-down)	TODAY'S DATE (m/d/yr)
◉ *Quarterly Report* ○ *Annual Report* ○ *Final*	HLB Pathology	10/23/09

WHAT IS THE "HEADLINE" FOR THIS REPORT (e.g. a one-sentence "newspaper headline" describing what you accomplished)

Chemicals that may control Huanglongbing

TITLE and CONTACT INFORMATION

Proposal Title A Rapid Screening Process for Chemical Control of Huanglongbing

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Phone 772-478-3922	*Project Duration (years)* 3 *Year of Project* 2
Organization University of Florida	*Total Direct Funds (current year)*

REPORT UPDATE (650 words; provide details about your headline)

(1) Continue screening of chemical compounds that eliminate or suppress the Las bacteria in periwinkle using the optimized regeneration system. The other chemicals, Metronidazole and ortho-phenylphenol , were tested for their ability to eliminate or suppress Las bacteria and to promote the growth of severe HLB-affected cuttings using the optimized regeneration system. The results showed that more than 2.0% of Metronidazole and ortho-phenylphenol significantly improved periwinkle cutting regeneration. The cuttings treated with less than 1% of metroidazole also regenerated very well. The Las-titers of the regenerated plants will be tested by quantitative real-time PCR.

(2) When PS was foliar-sprayed once a week for three consecutive weeks on the Las-infected periwinkle plants at different rates (1x, 5x and 10x), no significant differences were found among treatment rates, but each treatment reduced the Las-bacteria to undetectable levels in the infected plants as compared to the water control. DMSO or Silwet L-7 as emulsifiers had no effect on Las-infected periwinkle plants.

(3) HLB-affected citrus was foliar-sprayed or soaked in PS solutions once a week for three consecutive weeks in the greenhouse. The dynamics of Las bacteria were tested by PCR and Q-PCR monthly for a period of six months to determine if the PS affects the bacteria in citrus. After six months the Las-infected, PS treated citrus tested negative for Las by nested PCR, and undetected by real-time Q-PCR, but oxytetracycline and water control treatments were positive for Las.

(4) More than 100 citrus grove trees were tested by quantitative real-time PCR and conventional PCR at the Pico farm of the Horticultural Lab, USDA-ARS. The Las-infected citrus groves were used to evaluate the efficacy of screened chemicals in controlling HLB in the field. The experimental design was a randomized block design with three replications. The treatments were three rates of 1g/tree, 5g/tree and 10g/tree in combination with three the different injection methods; Direct-Inject QC (ArborSystems), Smart-Shot Injector (Treelogic) and Syringe-Injector. Citrus leaf samples will be collected every month for one year, and tested for Las by PCR, PS phytotoxicity and residues.